

FURTHER NOTES AND DESCRIPTIONS OF BOMBAY SHORE
FISHES

BY

HENRY W. FOWLER

Of the Academy of Natural Sciences of Philadelphia

(With two plates)

The second instalment of Dr. F. Hallberg's collection of Indian fishes contains the material reported in the present paper. They are labelled as having been obtained at Bombay and most also with the additional designation of Back Bay. These specimens comprise 175 specimens, representing 89 species, of which I describe as new :

Pseudochronis spencei.

Pomacentrus prateri.

ORECTOLOBIDÆ

Stegostoma tigrinum (Forster).

Depth $4\frac{1}{2}$; head $3\frac{3}{8}$, width 1. Snout $1\frac{3}{4}$ in head; eye 10, 7 in snout, $9\frac{3}{4}$ in interorbital; mouth width $3\frac{3}{8}$, with short labial folds at angles and with preoral upper fold followed by hind narial flap; teeth small, tricuspid, about 20 rows in each jaw; interorbital $1\frac{1}{2}$ in head, broadly convex. Spiracle short vertical slit about half eye-diameter behind eye and length $1\frac{1}{2}$ in eye. Scales with median keel and 1 or 2 laterals each side, all ending in short points. First dorsal inserted little before ventral, length $1\frac{1}{4}$ in head; second dorsal before anal, length $1\frac{2}{3}$; anal $2\frac{1}{10}$; ventral $1\frac{4}{5}$; pectoral $3\frac{2}{3}$ to caudal base; caudal very slightly less than rest of body.

Brown largely, under surface of head and abdomen uniform whitish. Over back 12 cross bands of little deeper brown, each bordered broadly by blackish, between end of snout and first dorsal with first 8 louped variably as pairs; on rest of body and tail about 25 dark cross bands, of which half a dozen on tail louped or paired. Whole lower side of body and tail, also anal and upper surfaces of paired fins, with dark or blackish spots, largest but little larger than eye.

One 788 mm. For comparison I have examined two from the Philippines, 325 to 356 mm. The larger shows :

Snout $1\frac{2}{3}$ in head; eye $10\frac{1}{2}$, 7 in snout, 9 in interorbital; mouth width $2\frac{1}{2}$; teeth in 23 rows in each jaw; interorbital $1\frac{1}{3}$ in head, convexly elevated. First dorsal length $1\frac{1}{2}$; second dorsal length $2\frac{2}{3}$; pectoral $1\frac{1}{3}$, width $1\frac{1}{4}$ its length; ventral 2; caudal slightly greater than rest of body. Back and sides brown, 8 transverse buff bands on head and body and 13 on tail; first band across occiput down on pectoral bases, likewise second band; on tail bands divide to form lower series. Small pale spot in middle of interorbital. Belly and under surface white.

Chiloscyllium griseum, Müller and Henle.

Depth $8\frac{3}{4}$ to $9\frac{3}{4}$, to origin of subcaudal lobe; head $4\frac{3}{4}$ to 5, width $1\frac{1}{2}$. Snout 2 in head; eye $2\frac{3}{4}$ to 5 in snout, $2\frac{3}{4}$ to 3 in interorbital; mouth width $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, with short, deep, labial folds at angles leaving broad, adnate, lower fold; teeth in 26 to 30 rows in each jaw, each as strong, triangular, median cusp; interorbital $2\frac{3}{4}$ to 3, broadly convex. Spiracle oblique, close behind and below level of eye; slightly less than eye. Scales simple pointed denticles. Single median predorsal keel. First dorsal inserted over posterior portion of ventral base, length $1\frac{1}{3}$ in head; second dorsal $1\frac{2}{3}$ to $1\frac{1}{2}$; anal $1\frac{1}{3}$ to $1\frac{2}{3}$; least depth of caudal peduncle 5 to $5\frac{1}{2}$; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{3}$; caudal $3\frac{2}{3}$ to $4\frac{1}{3}$ in rest of body from subcaudal origin.

Back drab gray, below white. Iris dark gray. Fins all with more or less deeper drab terminally.

Two 138 to 188 mm.

SPHYRNIDÆ

Sphyrna blochii (Cuvier).

Depth $5\frac{3}{4}$; head $3\frac{1}{2}$, length $2\frac{5}{8}$ in its width. Snout tip to mouth slightly less than least width of oculonarial expansion and front edge or between nostrils broadly rounded. Eye small, 6 times to nostril. Mouth length $\frac{3}{4}$ its width, which $1\frac{1}{2}$ in space between mouth and front snout edge. Teeth not developed. Space between nostril and eye little less than internasal space; deep groove from nostril to eye and forward nearly half way to front end of snout. First dorsal inserted over pectoral base posteriorly, length little greater than head or $3\frac{1}{8}$ to caudal base; second dorsal inserted little behind anal origin, length 2 in head; anal $1\frac{5}{8}$; least depth of caudal peduncle $3\frac{3}{8}$; pectoral $1\frac{1}{2}$, width $1\frac{7}{8}$ its length; ventral length $2\frac{1}{2}$ in head; caudal 2 in rest of body, lower lobe $2\frac{1}{4}$ in upper.

Gray brown above, white below. Edges above of oculonarial expansion, anal, caudal and paired fins all narrowly paler. Iris slate.

One 347 mm.

PRISTIDÆ

Pristis cuspidatus, Latham.

Depth $11\frac{3}{4}$ to subcaudal origin; head $2\frac{3}{8}$, width at front of spiracles $4\frac{1}{3}$. Rostrum long, slender, tapers very gradually; rostral teeth 23-24, narrowly triangular, with inner subbasal barb, not extending on basal fourth of rostrum; eye $2\frac{7}{8}$ in interorbital; mouth width slightly greater than interorbital or $6\frac{1}{3}$ in head; teeth in about 62 rows; nostril oblique, larger than eye, $2\frac{3}{8}$ in interorbital; interorbital with superciliary regions little convex, higher than broad median convexity, width $6\frac{1}{2}$ in head. Skin smooth. First dorsal inserted behind ventral base, long as high or 4 in head; second dorsal little higher than long, $4\frac{1}{10}$ in head; subcaudal $1\frac{1}{2}$ in caudal which $2\frac{3}{8}$ in head; caudal peduncle depth $\frac{2}{3}$ its width which $2\frac{1}{5}$ in interorbital; pectoral long as wide, $3\frac{1}{2}$; ventral $3\frac{7}{8}$.

Dark drab or neutral gray above, below whitish. Borders of fins and lateral fold of tail whitish. Iris dark gray. Rostral teeth all pale.

One 615 mm.

TORPEDINIDÆ

Torpedo sinus-persici (Olfers).

Two examples 176 to 190 mm. In no way like the figure by Sauvage, as in my larger example the body is marked by more or less vermiculated dark or neutral brown, the lines variably as bars, spots, etc. Also very much more numerous and smaller or crowded along the front border of disk. In the smaller example the markings are more as large dark neutral dusky blotch or spots.

DASYATIIDÆ

Dasyatis uaranak (Forskåll).

Two examples, disk length to hind ventral edge 240 to 243 mm., disk width 225 to 263 mm., tail 724 to 743 mm. longer. Smaller a male with small tubercles of back continued forward to postocular and interorbital space. Also dark and tail uniform brown, whereas in large example it is alternately banded dark brown and white, latter color of much narrower width. In both examples body uniform, though smaller soiled over entire lower surface.

Jaws of a large example, the dentary width 127 mm. These slightly undulated and with 45 or 46 rows of transversely keeled teeth in each.

I have also compared two from the Philippines and two from Sumatra.

The former with the disk and tail above brown, with numerous, close set, rounded, dark spots, but little smaller and more crowded about borders of disk. On tail spots as single series all along upper surface. Entire under surface

creamy white. The Sumatra specimens are from Padang, disk length 196 to 225 mm., tail 521 to 586 mm., width 215 to 243 mm. Brown above, darker in disk center and on disk posteriorly number of round whitish spots with darker brown borders than body color. Tail basally with similar spots and mostly entire length with many equal whitish rings. Below white, tinted pale brown along edges. Listed by me as *Dasyatis russelli* in 1904.

Dasyatis imbricatus (Schneider).

Disk nearly wide as long, little concave on front edges, broadly rounded at angles and behind. Snout produced, sharp angular point, length to eye slightly longer than length to mouth, or nearly double interorbital width; eye $3\frac{2}{3}$ in interorbital; mouth width 3 in space to snout tip, little undulate; 2 lower papillæ in mouth; teeth in 32 rows in each jaw; interorbital $1\frac{2}{3}$ in snout, slightly depressed medianly. Spiracles large as eye. Interorbital and short space before eyes, cranium and middle of back broadly covered with minute rough plates or tubercles; at center of disk small spine and slightly enlarged vertebral row to tail where about 9 down to caudal spines, posterior of which larger and $2\frac{1}{4}$ in snout. Tail without membranes. Claspers moderate.

Uniform brown above, under surface whitish.

One example, disk length to hind ventral ends 238 mm., tail 285 mm. longer, disk width 225 mm.

Dasyatis sephen (Forskål).

One example 175 mm. from snout tip to hind disk edge and tail 443 longer. Greatly like Day's figure except it has but one caudal spine. Two large bony tubercles in middle of disk around which whole of middle of back, base of tail and interorbital covered with armour or pavement of minute flattened tubercle like scales. Lower fold of tail broad. Disk brown above, whitish below. Iris and spiracles dark gray. Lower fold of tail neutral dusky. Under surface of disk whitish, margins posteriorly and tail below dusky brown.

Another, length 250 mm. to vent and tail 528 mm. longer, from the Philippines, shows the following:—

Disk partly quadrangular $1\frac{1}{8}$ its width; head, measured to first gill-opening, $3\frac{1}{2}$ to vent; snout blunt, to eye $1\frac{1}{2}$ in head; snout tip to mouth front $1\frac{1}{2}$; eye elevated, 4 in snout, 4 in interorbital; mouth small, well undulated, width 2 in snout; interorbital about equals snout, depressed. Front nasal valves united and with free edge behind isthmus before mouth. Spiracle large, deep, larger than eye. Median portion of back and head with broad area of finely rough shagreen denticles and in middle of disk several enlarged; tail, outer portions of disk and all lower surface smooth. Tail with long broad fold below, its depth equals spiracle length. Body uniform brown above, below whitish and membrane below tail neutral black. Under surface of tail darker neutral gray medially.

Dasyatis zugei (Müller and Henle).

Disk subquadrangular, rounded on outer angles and posteriorly. Snout produced in rather slender elongated point, nearly 3 times interorbital; eye $3\frac{1}{2}$ to $3\frac{2}{3}$ in interorbital; mouth width $3\frac{2}{3}$ to $3\frac{3}{4}$ in space to snout tip, but slightly undulated; no lower papillæ in mouth; teeth 30 to 34 rows in each jaw; interorbital $2\frac{1}{4}$ to $2\frac{3}{8}$ in snout, depressed, with broad fontanel. Skin smooth. Upper surface of tail with row of 5 median spine like tubercles and 2 caudal spines, posterior of which $2\frac{1}{10}$ in snout. Tail smooth, with slight membrane above and below.

Brown above, more or less dusky brown medianly, below whitish largely soiled with dusky or dirty brown. Membranes of tail neutral black.

Two 155 to 190 mm. in disk length, tail 150 to 293 mm. longer, disk width 155 to 190 mm. Readily known by its extended snout giving much the outline of various species of *Raja*.

Pteroplatea pæciloura (Shaw).

Length of disk $1\frac{9}{10}$ its width. Head greatly depressed. Snout about $1\frac{1}{2}$ in interorbital; eye $5\frac{1}{2}$; mouth width $1\frac{1}{2}$; teeth in about 40 rows in each jaw; internasal space $1\frac{1}{3}$ in width. Interorbital flat, with broad median depression,

greater than interspiracle width. Spiracle larger than eye, without tentacle. Skin smooth. No dorsal. No caudal spine. Tail without dorsal folds. Brown above. Iris gray. Tail whitish, with 9 broad blackish bands, much wider than pale interspaces. One 153 mm. in disk length, tail 90 mm. longer, width 285 mm.

MYLIOBATIDÆ

Ætomylæus milvus (Müller and Henle)

Disk length $1\frac{2}{3}$ its width, convex along front edges, concave along hind edges and outer angles rather narrow. Skull wide, broadly convex in front. Snout about twice long as nasal valves, rounded anteriorly. Eye rather small, $5\frac{1}{2}$ in interorbital. Mouth width $2\frac{1}{2}$ in interorbital. Median teeth 7 or 8 times wide as long and 3 series of small laterals each side. Nasal valves form broad free flap, leaving wide space before teeth, hind edge shortly fringed and with slightly median notch. Internasal space $1\frac{1}{4}$ in space between snout tip to mouth. Interorbital level, fontanel moderate. Spiracle little larger than eye. Body entirely smooth. Dorsal origin above ends of ventral bases, hind margin not free from tail, edge $1\frac{1}{3}$ in interorbital. Ventral little over interorbital, width little less than half its length; claspers extend but little beyond ventrals. No caudal spine.

Back dark uniform brown, without traces of spots. Below whitish, with disk marginally more or less soiled with dirty brown. Iris dark gray. Tail brown, paler below anteriorly.

One with disk length to clasper ends 280 mm., tail 328 mm. longer, disk width 438 mm.

CHIROCENTRIDÆ

Chirocentrus dorab (Forskål).

One example 500 mm.

CLUPEIDÆ

Ilisha elongata (Bennett).

Depth 3; head $3\frac{3}{4}$, width $2\frac{3}{8}$. Snout $3\frac{3}{4}$ in head from snout tip; eye 3, greater than snout, nearly three times interorbital, front adipose lid covering first third of iris; maxillary reaches $\frac{2}{3}$ in eye, expansion $1\frac{2}{3}$ in eye, length $1\frac{1}{4}$ in head; teeth villiform, in narrow bands in jaws and on each palatine, broad band on tongue, none on vomer; mandible protrudes about $\frac{2}{3}$ eye-diameter before snout; interorbital $6\frac{1}{4}$ in head, little convex. Gill-rakers 8 + 20, lanceolate, little longer than gill-filaments or 2 in eye.

Scales all fallen, 44 + 4 in median lateral series, about 17 transversely, 17 predorsal. Abdominal scutes 23 + 11. Dorsal III, 9, 1 (damaged), inserted midway between snout tip and caudal base; anal III, 35 (damaged), begins below last dorsal rays, length 3 in combined head and body; caudal slightly shorter than total head length, well forked; least depth of caudal peduncle $3\frac{1}{2}$ in head.

Drab gray, evidently largely silvery white. Iris grayish. Fins pale.

One example 305 mm.

DOROSOMIDÆ

Clupanodon thrissa (Linné).

Depth $2\frac{2}{3}$ to $2\frac{7}{8}$; head $3\frac{1}{2}$ to $3\frac{3}{8}$, width $2\frac{1}{2}$ to $2\frac{1}{2}$. Snout $4\frac{1}{2}$ to $4\frac{1}{2}$ in head; eye $3\frac{2}{3}$ to $3\frac{1}{2}$, greater than snout or interorbital; adipose lids broad, cover $\frac{1}{3}$ of iris anteriorly and posteriorly; maxillary reaches little beyond front of eye, length $3\frac{1}{2}$ to $4\frac{1}{2}$, convexly elevated. Gill-rakers 132 + 160? very fine, setiform, slightly longer than gill-filaments or $2\frac{1}{2}$ in eye.

Scales 44 or 45 + 3 or 4 in median lateral series, 17 transversely, 16 predorsal; postocular, occipital and suprascapular regions, cheek and preopercle venulose; 2 or 3 pronounced vertical lines, sometimes complete and many finer parallel vertical striæ; broadly entire apically. Abdominal serræ 17 to 19 + 12. Dorsal III, 12, 1 or III, 13, 1, last ray $1\frac{1}{10}$ to $1\frac{1}{2}$ in head; anal III, 19, 1,

first branched ray $3\frac{2}{3}$ to $3\frac{3}{5}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{2}{3}$; pectoral $1\frac{1}{2}$ to $1\frac{1}{2}$; ventral $2\frac{2}{3}$ to $2\frac{2}{3}$; caudal forked, $3\frac{1}{3}$ to $3\frac{1}{4}$ in combined head and body to caudal base.

Back brown, each scale with slightly darker center, made up of dusky brown spots or dots. Dusky black blotch about 3 or 4 scales behind suprascapula, deep as vertical eye diameter though width less than eye width. From above upper part of dark blotch obsolete dull brown band extends back towards middle of caudal base. All below pale or whitish. Iris gray. Fins pale brownish. Dorsal and caudal dusted with dusky, especially about margins.

Three examples 85 to 104 mm.

ENGRAULIDIDÆ

Engraulis hamiltonii, Gray.

Depth $3\frac{2}{3}$; head 4 to $4\frac{1}{2}$, width $2\frac{1}{2}$. Snout $4\frac{1}{2}$ to 5 in head; eye $3\frac{1}{2}$ to 4 entirely covered by adipose eye-lids, greater than snout or $1\frac{1}{2}$ in interorbital; maxillary extends little beyond gill-opening or nearly to pectoral origin, expansion $1\frac{1}{2}$ in eye; teeth small, uniserial in jaws, smaller and in narrow band on each palatine, none on vomer; interorbital $3\frac{2}{3}$ to $3\frac{1}{2}$, convexly elevated with slight median ridge. Gill-rakers 9 + 12, lanceolate, $1\frac{1}{2}$ in eye.

Scales 43 + 3 in median lateral series, 12 transversely, 22 predorsal; opercles, cheeks, occipital and scapulary regions venulose, area at suprascapula especially broad; 5 or 6 transverse radiating striæ and apical margin broadly reticulated. Abdominal serræ 16 or 17 + 10. Dorsal III, 11, I, third simple ray $1\frac{1}{2}$ to $1\frac{1}{4}$ in head; anal III, 38, I, third simple ray $1\frac{3}{4}$ to $1\frac{1}{2}$; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{1}{2}$; pectoral $1\frac{1}{10}$ to $1\frac{1}{3}$; ventral $2\frac{1}{2}$ to 3.

Back brown, sides paler and below whitish. Iris slate. Dark brown on suprascapula. Fins all pale, dorsal and caudal dark gray marginally.

Three 165 to 175 mm. I have also compared 2 larger examples 178 to 225 mm. from the Philippines, wrongly listed by me in 1918 as *Thrissocles mystax*. They show:—

Depth $3\frac{2}{3}$ to $3\frac{2}{3}$; head $4\frac{1}{4}$ to $4\frac{1}{2}$; width $2\frac{3}{5}$ to $2\frac{1}{2}$. Snout $4\frac{1}{2}$ to $5\frac{1}{2}$ in head; eye $3\frac{1}{2}$ to $4\frac{2}{3}$, $1\frac{1}{3}$ to $1\frac{1}{2}$ in interorbital; maxillary expansion 2 to 3 in eye; jaws even, snout not projecting; interorbital $3\frac{1}{2}$ to 4 in head. Gill-rakers 11 + 14, equal eye.

Scales 44 or 45 + in median lateral series, deciduous, 12 or 13 transversely, 18 to 20 predorsal; 4 to 6 transverse parallel vertical striæ, variously incomplete medianly and with age 4 to 6 parallel close vertical apical striæ, circuli minute and vertical. Abdominal serræ 17 or 18 + 10. Dorsal III, 11, third simple ray $1\frac{1}{2}$ to $1\frac{1}{2}$ in head; anal III, 35, I, first branched ray $1\frac{1}{2}$ to $1\frac{1}{2}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{1}{4}$; ventral 3 to $3\frac{1}{4}$; caudal $3\frac{1}{2}$ to 4 in head and body to caudal base, well forked, lobes sharply pointed.

Pale brown, sides and below lighter. Iris gray. Fins all pale.

MURÆNESOCIDÆ

Murænesox cinereus (Forskål).

One 618 mm.

TACHYSURIDÆ

Netuma thalassinus, Rüppell.

One 285 mm. I have 17 from the Philippines and 1 from Padang, Sumatra, the latter 616 mm., for comparison.

Tachysurus venosus (Valenciennes).

Depth $3\frac{1}{2}$; head $3\frac{1}{2}$, width $1\frac{1}{2}$. Snout $2\frac{1}{2}$ in head; eye 8, $3\frac{1}{2}$ in snout, $4\frac{1}{2}$ in interorbital; mouth width $2\frac{2}{3}$ in head, lower jaw inferior; maxillary barbel reaches $\frac{1}{4}$ in depressed pectoral, outer mental reaches to pectoral origin, inner little shorter; teeth in jaws villiform, in moderately wide bands and triangular palatine area on each side much deeper than wide; interorbital $1\frac{1}{2}$ in head; frontal fontanel rather narrow, with very narrow groove to predorsal plate. Gill-rakers 5 + 9, lanceolate, $1\frac{1}{2}$ in gill-filaments, which slightly less than eye.

Parietal bones, predorsal and humeral plates rugosely striate or granular, skin otherwise smooth.

Dorsal I, 7, front edge of spine with row of granular like serræ and 14 very small antorse ones along median hind edge, first ray $1\frac{1}{2}$ in head; adipose fin $2\frac{1}{2}$; anal VII, 14, I, first branched ray $2\frac{1}{2}$; caudal $1\frac{1}{2}$, well forked; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{3}{8}$, spine with fine serræ along front edge and about 14 antorse serræ along hind edge; ventral $1\frac{1}{4}$.

Back and upper surface drab brown, soiled whitish below. Iris grayish. Barbels gray. Paired fins and anal whitish, terminally with grayish.

One 313 mm.

SILURIDÆ

Mystus vittatus (Bloch).

Depth $4\frac{2}{3}$ to $4\frac{3}{4}$; head $3\frac{3}{8}$ to $3\frac{3}{4}$, width $1\frac{3}{8}$. Snout 3 to $3\frac{1}{10}$ in head; eye 5 to $5\frac{1}{2}$, $1\frac{2}{3}$ to 2 in snout, $1\frac{1}{4}$ to 2 in interorbital; mouth width $2\frac{3}{8}$ to $2\frac{1}{2}$ in head; nasal barbel reaches back little beyond eye or $2\frac{1}{2}$ in head; maxillary barbel reaches ventral origin; outer mental barbel reaches $\frac{3}{8}$ in depressed pectoral fin; inner mental barbel shorter or $1\frac{1}{4}$ in head; teeth villiform, in bands in jaws and across vomer and palatines; interorbital $2\frac{3}{8}$ to 3 in head, about level; opercle with fine radiating striæ; frontal fontanel broad, nearly reaches occipital plate; occipital process reaches as short point $\frac{1}{3}$ to dorsal plate. Gill-rakers 9 + 28, finely lanceolate, little larger than gill-filaments or slightly less than eye.

Skin smooth. Cranium and humeral region rugose striate, latter less so.

Dorsal I, 7, I, ossified portion of spine $1\frac{3}{4}$ to $1\frac{7}{8}$ in head, with 7 or 8 antorse serræ along hind edge; adipose fin about $\frac{3}{4}$ of anal; Anal IV, 9, I or IV, 10, I, first branched ray $2\frac{1}{2}$ to $2\frac{3}{4}$; caudal about equals head, strongly forked, lower lobe usually little shorter; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{4}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{4}$, with 8 to 11 antorse serræ on inner edge of spine; ventral 2 to $2\frac{1}{4}$.

Neutral olive above, becoming lived or drab gray to whitish below. Maxillary and nasal barbels dark, others pale. Iris gray. Fins all gray brown.

Four examples 77 to 108 mm. All show the ventrals inserted distinctly or entirely behind the first dorsal base. They all show only obsolete traces of pale longitudinal bands, in fact greatly resembling Day's figure 3 of his plate 98.

Jordan has named *Macrones* (non Newman 1841) Dumeril 1856, orthotype *Bagrus lamarii* Valenciennes, as *Aoria* (Genera of Fishes, pt. 2, 1919, p. 269). *Aoria* is hardly available as both the older names of *Hemibagrus* Bleeker and *Aspidobagrus* Bleeker, also fall as synonyms. *Mystus* Gronow is proposed in the Zoophylaceum, 1763, p. 124, type *Bagrus halepensis* Valenciennes, and later introduced by Scopoli, Introd. Hist. Nat., 1777, p. 451, type *Bagrus halepensis* Valenciennes, virtually.

SYNODONTIDÆ

Saurida tumbil (Bloch).

Four 140 to 325 mm. Brown above, each scale on back edged with darker. Whitish below. Branchiostegals with grayish. Iris gray. Fins brown. Dorsal, caudal and paired fins neutral gray terminally. Also compared with two from Padang, Sumatra, 127 to 344 mm.

Harpodon nehereus (Buchanan-Hamilton).

Two 200 to 220 mm.

HEMIRAMPHIDÆ

Hemiramphus unifasciatus, Ranzani.

Two 137 to 143 mm. Compared with an example 133 mm. from Padang, Sumatra, 1 listed as *Hemiramphus neglectus*.

SPHYRÆNIDÆ

Sphyræna jello, Cuvier.

Depth $8\frac{1}{2}$; head $3\frac{1}{2}$, width $3\frac{3}{4}$. Snout $2\frac{1}{2}$ in head from snout tip; eye 6, $2\frac{1}{2}$ in snout, $1\frac{1}{2}$ in interorbital; maxillary not quite reaching opposite eye,

expansion 2, length $2\frac{1}{2}$ in head; interorbital $5\frac{1}{3}$, level or with only slight median depression; preopercle rounded convexly. No gill-rakers.

Scales $125 + 8$, 15 above, 13 below, 38 predorsal to occiput.

Dorsal V-I, 1, 8, 1, first spine $2\frac{3}{4}$ in total head length, first branched ray $2\frac{3}{4}$; anal II, 1, 7, 1, first branched ray $2\frac{3}{4}$; caudal $1\frac{1}{2}$, forked; least depth of caudal peduncle $4\frac{3}{4}$; pectoral $2\frac{3}{4}$; ventral $3\frac{1}{2}$.

Back brown, below pale to whitish. Over back 12 dark transverse bands, wider than interspaces and extend down to middle of sides. Iris gray. Dorsals and caudal brownish, other fins paler.

One 258 mm. Also four from the Philippines for comparison, 106 to 257 mm. They show:

Depth $7\frac{1}{2}$ to $7\frac{3}{4}$; head 3 to $3\frac{3}{8}$, width $4\frac{1}{2}$ to $4\frac{1}{4}$. Snout $2\frac{1}{2}$ to $2\frac{1}{4}$ in head from snout tip; eye $5\frac{1}{8}$ to $6\frac{1}{4}$, $2\frac{7}{8}$ to 3 in snout, 1 to $1\frac{1}{3}$ in interorbital; maxillary $2\frac{1}{3}$ to $2\frac{3}{8}$ in head, expansion $1\frac{3}{4}$ to 2 in eye; interorbital 6 to $6\frac{1}{2}$ in head, level; preopercle edge convex.

Scales 110 to 120 + 10 to 12 in lateral line, 13 above, 13 below, 32 to 40 predorsal. Dorsal V-I, 8, 1, first spine $2\frac{3}{4}$ to $3\frac{3}{8}$ in total head length, first ray $2\frac{3}{8}$ to $2\frac{3}{4}$; anal II, 1, 7, 1, second spine $5\frac{1}{2}$ to $6\frac{1}{2}$, first ray $2\frac{7}{8}$ to 3; caudal $1\frac{1}{2}$ to $1\frac{3}{4}$, well forked; pectoral $2\frac{3}{8}$ to $2\frac{3}{4}$; ventral $3\frac{3}{8}$ to $3\frac{3}{4}$.

Neutral brown above, sides and below pale to whitish. About 12 deep neutral gray spots along side and not larger than eye. Dorsals and caudal grayish other fins whitish.

Sphyræna obtusata, Cuvier.

Depth $5\frac{3}{4}$; head $2\frac{3}{4}$, width $2\frac{1}{2}$. Snout $2\frac{1}{2}$ in head from snout tip; eye $4\frac{3}{4}$, 2 in snout, subequal with interorbital; maxillary not quite reaching to eye, expansion $1\frac{1}{2}$ in eye, length $2\frac{3}{8}$ in head; interorbital 5, level, eyes slightly protrude above each side; preopercle nearly forms right angle. Gill-rakers 0 + 2.

Scales $83 + 5$, 9 above, 10 below, 18 predorsal to occiput. Dorsal V-I, 1, 8, 1, first spine $2\frac{3}{8}$ in total head length, first branched ray 3; anal II, 1, 8, 1, first branched ray $3\frac{1}{10}$; caudal $1\frac{1}{2}$, deeply forked; least depth of caudal peduncle $4\frac{1}{2}$; pectoral $2\frac{1}{2}$, reaches beyond spinous dorsal origin; ventral $2\frac{3}{8}$, inserted before spinous dorsal origin.

Back brown, below whitish. Iris deep gray. Dorsals and caudal brownish, other fins pale.

One 272 mm. Also 4 from the Philippines, 162 to 185 mm. They show:—

Depth $5\frac{3}{4}$ to $7\frac{1}{2}$; head $2\frac{3}{4}$ to $2\frac{7}{8}$, width $3\frac{1}{10}$ to $3\frac{3}{8}$. Snout $2\frac{1}{2}$ to $2\frac{1}{4}$ in head from snout tip; eye 5 to $5\frac{1}{2}$, $2\frac{1}{2}$ to $2\frac{1}{3}$ in snout, greater than interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{1}{2}$ to eye, expansion $2\frac{3}{8}$ to $2\frac{1}{4}$ in eye, length $2\frac{3}{8}$ to $2\frac{3}{4}$ in head; teeth mostly vertically erect, 2 pairs of upper front canines, single lower symphyseal canine and several smaller laterals which larger than others in mandible; each palatine with row of fine teeth preceded by a row of 3 to 5 large canines; interorbital $6\frac{1}{3}$ to $7\frac{1}{2}$, very slightly convex and largely depressed medianly; preopercle edge rectangular, flap like. Gill-rakers 0 + 2, half of gill-filaments or 4 in eye.

Scales 75 to 78 + 9 or 10, 8 above, 10 below, 27 predorsal to hind eye edge; 6 or 7 rows of cheek scales; 32 to 36 basal radiating striæ and complete circuli with about 30 apical. Dorsal V-I, 9, 1, first spine $2\frac{3}{8}$ to $3\frac{1}{8}$ in total head length, first ray $2\frac{3}{8}$ to $3\frac{3}{8}$; anal I or II, 8, 1 or 9, 1, last spine $5\frac{1}{2}$ to 7, first ray 3 to 4; caudal $1\frac{1}{2}$ to $1\frac{3}{4}$, forked; pectoral $2\frac{1}{2}$ to $3\frac{1}{4}$, reaches to or little beyond spinous dorsal origin; ventral $2\frac{3}{4}$ to $3\frac{1}{4}$, inserted well before spinous dorsal.

Back and above brown, below silvery white. Pale, diffuse longitudinal gray streak along middle of side close below lateral line. Iris silvery white, with grayish. Dorsals and caudal dusky, with pale yellowish tinge basally, other fins pale yellowish white.

ATHERINIDÆ

Atherina valenciennesi, Bleeker.

Depth $4\frac{3}{4}$ to 5; head 4 to $4\frac{1}{8}$, width $1\frac{3}{4}$ to $1\frac{1}{4}$. Snout $3\frac{1}{2}$ to 4 in head; eye $2\frac{3}{8}$ to $2\frac{1}{4}$, greater than snout or 1 to $1\frac{1}{8}$ in interorbital; maxillary $2\frac{3}{8}$ to $2\frac{1}{4}$ in head, reaches eye; teeth villiform, minute, in bands in jaws, on vomer and

palatines ; interorbital $2\frac{2}{3}$ to $2\frac{1}{2}$, level. Gill-rakers 6 + 19, lanceolate, little longer than gill-filaments or $2\frac{1}{2}$ in eye.

Scales 39 or 40 + 4 or 5, 8 transversely, 19 to 21 predorsal, single row on cheek ; 2 or 3 close set median basal points, 25 to 35 parallel vertical striae. Dorsal V-I, 9, I, first spine $2\frac{1}{2}$ to $2\frac{1}{4}$ in head, first branched ray $1\frac{2}{3}$ to $1\frac{1}{2}$; anal III, I, 10, I, first branched ray $1\frac{3}{4}$ to $1\frac{3}{4}$; caudal $1\frac{1}{8}$ to $1\frac{1}{10}$, forked ; least depth of caudal peduncle 3 to $3\frac{1}{2}$; pectoral $1\frac{1}{2}$ to $1\frac{1}{4}$; ventral $1\frac{1}{2}$ to $1\frac{1}{8}$. Vent before first third in depressed ventral and 6 scales between it and vertical line through body to first dorsal origin.

Light brown generally, paler below. Each scale on back above sprinkled with dusky brown dots, though leaving broad uniform margin. Underlaid gray band from pectoral axil to caudal base medianly, widest at latter and this not quite equal to eye. Iris slaty. Row of dusky dots on lower surface of tail close along anal base. Fins all pale, hind caudal edge dusky. Narrow dusky line across pectoral base.

Three 70 to 76 mm.

MUGILIDÆ

Mugil dussumieri, Valenciennes.

Depth 4 ; head $3\frac{1}{4}$ to $3\frac{2}{3}$, width $1\frac{3}{8}$ to $1\frac{1}{4}$. Snout $3\frac{5}{8}$ to $3\frac{1}{4}$ in head ; eye $3\frac{2}{3}$ to 4, greater than snout, $1\frac{1}{2}$ to $1\frac{2}{3}$ in interorbital, broad adipose lids cover $\frac{1}{4}$ of iris in front and behind ; mouth width $3\frac{1}{10}$ to $3\frac{1}{5}$ in head ; upper lip rather broad, width $\frac{1}{3}$ of eye ; maxillary well exposed when mouth closes ; interorbital $2\frac{1}{4}$ to $2\frac{1}{2}$ in head, nearly level ; lower preorbital edge finely serrated. Gill-rakers 27 + 45, finely lanceolate, $1\frac{1}{4}$ in gill-filaments.

Scales 30 + , 11 transversely, 23 predorsal ; soft vertical fins finely scaled ; no axillary pectoral scale ; scales with 6 to 9 basal radiating striae, 74 to 86 weak apical denticles with 8 to 10 transverse series of basal elements and circuli fine. Dorsal IV-I, 8, I, first spine $1\frac{3}{4}$ to $1\frac{1}{2}$ in head, first branched ray $1\frac{1}{2}$ to $1\frac{1}{4}$, soft dorsal origin over middle of anal base ; anal III, 9, I, first branched ray $1\frac{1}{2}$; caudal 1 to $1\frac{1}{10}$, deeply emarginate ; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{2}{3}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{8}$; ventral $1\frac{1}{2}$.

Back olive brown, below whitish. Iris slate gray. Fins brownish, lower whitish and no dark spot at pectoral origin.

Two 100 to 110 mm.

Mugil ophuysenii, Bleeker.

Depth $3\frac{2}{3}$ to 4 ; head $3\frac{1}{2}$ to 4, width $1\frac{1}{2}$ to $1\frac{3}{8}$. Snout $3\frac{7}{8}$ to 4 in head ; eye $3\frac{2}{3}$ to 4, equals snout, $1\frac{7}{8}$ to 2 in interorbital, broad adipose lids cover iris $\frac{1}{3}$ in front and behind ; mouth width 3 in head, as seen below would form an obtuse angle ; upper lips rather broad, width $3\frac{1}{5}$ in eye ; interorbital 2 to $2\frac{1}{5}$, broadly convex ; maxillary slightly visible when mouth closes ; lower preorbital edge minutely serrated. Gill-rakers 31 + 43, finely lanceolate, $1\frac{3}{8}$ in gill-filaments or $1\frac{3}{4}$ in eye.

Scales 32 to 34 + 3, 12 transversely, 17 or 18 predorsal ; axillary pectoral scale $2\frac{2}{3}$ in fin ; median ventral scaly flap $\frac{2}{3}$ of fin ; soft dorsal, caudal and anal densely covered with fine scales ; scales with 6 basal radiating striae, apical borders finely fringed and circuli minute. Dorsal IV-I, I, 7, I, first spine $1\frac{1}{2}$ in head, first branched ray $1\frac{1}{2}$, origin of second dorsal over first third of anal base ; anal III, I, 8, I, first branched ray $1\frac{3}{8}$ to $1\frac{2}{3}$; caudal $3\frac{2}{3}$ to $3\frac{1}{2}$ to caudal base, large, emarginate behind ; pectoral $3\frac{2}{3}$ to $4\frac{1}{2}$, reaches slightly beyond first dorsal origin ; ventral $1\frac{1}{2}$ to $1\frac{3}{8}$ in head ; least depth of caudal peduncle 2.

Back olive brown, sides and below whitish. Fins all pale brown, edges of dorsal and caudal dusky, other fins paler. Pectoral with small neutral dusky spot at origin of fin. Iris gray.

Two 158 to 160 mm. I have not previously met with this East Indian species and it does not appear to have been recorded from Bombay. My specimens agree with Weber and Beaufort's description. This species differ from *Mugil seheli* in the presence of the broad adipose eyelids and the origin of the first dorsal nearer the snout tip than the caudal base.

Mugil vaigiensis, Quoy and Gaimard.

Three examples, 42 to 45 mm. All show the dorsals and anal apically and pectoral superiorly, neutral dusky to blackish.

Mugil borneensis, Bleeker.

Depth $3\frac{1}{2}$ to $3\frac{2}{3}$; head $3\frac{1}{2}$ to $3\frac{1}{4}$, width $1\frac{3}{4}$ to $1\frac{3}{8}$. Snout $3\frac{2}{3}$ to $3\frac{1}{2}$; eye $3\frac{1}{4}$ to $3\frac{2}{3}$, much greater than snout, $1\frac{2}{3}$ to $1\frac{1}{2}$ in interorbital, adipose lid barely covering $\frac{1}{4}$ of iris; mouth width $3\frac{1}{10}$ to $3\frac{1}{2}$ in head; upper lip moderately wide, width $.3\frac{2}{3}$ in eye; maxillary well exposed when mouth closes; lower preorbital edge serrate; interorbital $2\frac{2}{3}$ to $2\frac{1}{2}$, broadly convex. Gill-rakers 24 + 36, finely lanceolate, $1\frac{2}{3}$ in gill-filaments which $1\frac{1}{2}$ in eye.

Scales 30 to 32 + in median lateral series, 11 or 12 transversely, 20 to 21 predorsal; soft vertical fins with small scales basally; scales with 5 or 6 basal radiating striæ, 41 weak apical denticles, with 3 or 4 transverse series of basal elements and circuli fine. Dorsal IV-1, 8, 1, first spine $1\frac{2}{3}$ to $1\frac{1}{2}$ in head, first branched ray $1\frac{1}{2}$ to $1\frac{1}{3}$, soft dorsal origin opposite last fourth of anal base or totally behind same; anal III, 9, 1, first branched ray $1\frac{1}{2}$ to 2; caudal $1\frac{1}{2}$ to $1\frac{1}{4}$, concave behind; least depth of caudal peduncle $2\frac{2}{3}$ to $2\frac{1}{2}$; pectoral $1\frac{1}{2}$ to $1\frac{2}{3}$, without axillary scale; ventral $1\frac{2}{3}$ to $1\frac{1}{2}$.

Back brown, side and below paler to whitish. Iris slate gray. Dorsal, caudal and pectoral brownish, other fins whitish, without markings and no dark spot at pectoral origin.

Three 58 to 67 mm.

POLYNEMIDÆ

Polydactylus sextarius (Bloch).

One example, 206 mm. It has 7 pectoral filaments each side. Pectoral fin pale and blackish blotch after third scale of lateral line extending over 4 scales.

Polydactylus plebejus (Broussonet).

Two, 280 to 342 mm. Larger with each caudal lobe ending in filament. Also it has dorsals, anal, pectoral and ventral blackish while in the smaller one the ventrals and anal are only dark brown.

SCOMBRIDÆ

Rastrelliger brachysomus (Bleeker).

Depth $3\frac{3}{4}$; head $3\frac{1}{2}$, width $2\frac{1}{2}$. Snout $3\frac{2}{3}$ in head from snout tip; eye 5, $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ in interorbital, less than median third freed by broad adipose eyelids; maxillary reaches opposite hind eye edge, expansion $2\frac{1}{2}$ in eye, broadly sheathed by long preorbital, length 2 in head; narrow band of minute villiform teeth in each jaw, none on palate or tongue; interorbital $3\frac{1}{2}$, but little elevated and with snout above broadly flattened medially; preopercle with radiating venules, also each side of head above from behind eye and others along each side of predorsal squamation to suprascapula region. Gill-rakers 21 + 43, compressed, inner edges fringed with fine short setæ, longer than gill-filaments or $2\frac{2}{3}$ in total head length.

Scales 123 + in lateral line, 12 above, 27 below, 25 predorsal, not forming corselet, but little enlarged below pectoral base and on cheek; soft dorsal and anal densely covered with small scales. Large scales with marginal apical fringe of 32 points; vertical parallel striæ on scales 13 to 25 and on large scales about 35 on apical half. Dorsal X-1, 1, 10, 1-5, first spine $1\frac{1}{2}$ in total head length, first branched ray 3; anal I, 1, 10, 1-5, first branched ray 3; caudal $1\frac{1}{2}$, deeply forked; least depth of caudal peduncle 8; pectoral $2\frac{1}{2}$; ventral $2\frac{1}{2}$.

Back dull olive, sides and below whitish. Iris showing grayish with brassy through adipose lids. Fins all dull brownish, spinous dorsal more grayish and darker marginally, lobe of soft dorsal apically and hind caudal margin also with dusky. Lower fins more whitish.

One, 230 mm. This species is well figured by Jordan and Dickerson¹ from a specimen obtained at Fiji. Day knew it from the Andamans so that my example now shows it ranges from Bombay to Polynesia. I have also examined material from Melanesia.

Scomberomorus guttatus (Schneider).

Depth $4\frac{1}{2}$ head $4\frac{1}{4}$; width $2\frac{1}{2}$. Snout $3\frac{1}{10}$ in head; eye $6\frac{1}{2}$, $2\frac{1}{4}$ in snout, $2\frac{1}{2}$ in interorbital; maxillary extends well beyond eye, expansion $1\frac{1}{3}$ in eye, length

¹ Proc. U.S. Nat. Mus. 34, 1908, p. 609, fig. 3.

$1\frac{9}{10}$ in head; row of 36 compressed lanceolate teeth above, 26 below in jaws; areas of villiform teeth on vomer, palatines and tongue; interorbital $3\frac{1}{2}$ in head, convexly elevated. Gill-rakers 3 + 7, lanceolate, $\frac{1}{2}$ of gill-filaments which equal eye.

Scales minute, little evident; dorsal, anal and caudal lobes finely scaled; lateral line curves rather evenly along back, drops medianly to caudal peduncle. Dorsal XVI—IV, 15 + 9, third spine $2\frac{2}{3}$ in head, first branched dorsal ray $1\frac{1}{2}$ in head; anal III, 17 + 8, first branched ray $1\frac{1}{2}$; caudal 1, deeply forked lunately; least depth of caudal peduncle $4\frac{2}{3}$; pectoral $1\frac{1}{2}$; ventral $3\frac{1}{4}$.

Back neutral brown, shading more drab on sides and below whitish. On back many obscure neutral dusky to blackish spots, in about 6 longitudinal rows. Iris gray brown. Spinous dorsal neutral black, soft dorsal, pectoral and caudal brownish, other fins whitish.

One 450 mm.

TRICHIURIDÆ

Trichiurus savala, Cuvier.

One 465 mm. Eye 3 snout.

STROMATEIDÆ

Pampus cinereus (Bloch).

Depth $1\frac{1}{2}$; head $3\frac{2}{3}$, width $1\frac{1}{2}$. Snout $3\frac{1}{2}$ in head; eye $3\frac{1}{3}$, equals snout, $1\frac{1}{2}$ in interorbital; maxillary reaches opposite eye center, expansion $2\frac{1}{2}$ in eye, length from snout tip 2 in head; interorbital 2, convexly elevated; opercle with radiating striæ. Gill-rakers 2 + 8 short rudimentary points.

Dorsal IX, VI, 38, I, lobe of soft fin 3 in combined head and body; anal VI, IV, 35, I, lobe $2\frac{1}{2}$; lower caudal lobe $2\frac{1}{2}$, longer than upper; pectoral $2\frac{1}{4}$.

Brown, paler to whitish below with silvery reflections. Head and fins all more or less with dusky, except caudal which quite pale. Iris gray.

One 157 mm. The nominal *Pampus lighti* Evermann and Shaw¹ is likely a variant only 77 mm. long. It simply shows a slight increase in fin formulæ, as 'D. X, 48; A. VII, 45.' The alleged 'longer pectoral, more deeply forked caudal, whose lobes are unequal in length, shorter lower jaw, and the more pointed anterior portions of dorsal and anal' are surely valueless distinctions.

NOMEIDÆ

Psenes indicus, Day.

Depth $2\frac{1}{4}$ to $2\frac{1}{2}$; head 3 to $3\frac{1}{2}$, width 2. Snout $3\frac{3}{4}$ to $3\frac{1}{2}$ in head from snout tip; eye $3\frac{3}{4}$ to $3\frac{7}{8}$, subequal with snout, $1\frac{1}{2}$ to $1\frac{3}{4}$ in interorbital; maxillary not quite reaching eye, largely sheathed by rather narrow preorbital, expansion 3 to $3\frac{3}{4}$ in eye, length $3\frac{3}{4}$ to $3\frac{3}{4}$ in head; teeth minute, uniserial, even and firm in jaws, none on palate or tongue; interorbital $2\frac{3}{4}$ to 3, greatly elevated convexly. Gill-rakers 9 + 14, lanceolate, $2\frac{1}{2}$ in gill-filaments or $\frac{1}{3}$ of eye.

Scales very deciduous, all fallen, about 42 (pockets) in lateral line; narrowly imbricated on sides of body. Dorsal XI, I, 15, I, spines and rays very fragile, first ray $2\frac{1}{4}$ to $2\frac{1}{2}$ in total head length; anal III, 14, I, first branched ray $2\frac{3}{4}$ to $2\frac{5}{8}$; caudal 1 to $1\frac{1}{10}$, deeply forked; least depth of caudal peduncle $4\frac{1}{2}$ to $4\frac{2}{3}$; pectoral 1; ventral $2\frac{1}{2}$ to $2\frac{3}{5}$.

Largely deep drab gray, little paler below. Fins and head largely brownish. Iris deep gray.

Three 160 to 182 mm.

CARANGIDÆ

Scomberoides toloo (Cuvier).

Two 130 to 140 mm. This species is known by the maxillary reaching to or slightly beyond the hind edge of the eye, the rather large or broadly exposed

¹ *Proc. California Acad. Sci.*, vol. 16, no. 4, 4th series, January 31, 1927, p. 114, Nanking.

scales and the pale soft dorsal, anal and caudal lobes, these not black. My examples show very faint traces of the 5 or 6 upper lateral neutral gray blotches and they are more as shown in Day's figure of *Chorinemus tolooo*. The very incomplete account of *Chorinemus tolooo* Cuvier¹ is based on an example 200 mm. long obtained at Malabar in which the spots are described as obliterated. It is, however, identified with the *Toloo-parah* of Russell,² who says 'the dorsal, anal and caudal fins are darkish' and gives the length as 400 mm. His figure shows the depth as $2\frac{2}{3}$, the maxillary reaching opposite hind eye edge and only the edges of the dorsal and anal, and hind caudal edge slightly shaded. The lateral line does not show the sharp angle below the front of the spinous dorsal as in my specimens and the 5 dark upper lateral spots are shown all above it. According to Klunzinger his *Chorinemus moadetta* = *Scomberoides tolooo-parah* (Rüppell), differs in a more slender body and the soft dorsal and anal lobes blackish. This appears to be the species mostly met with in Oceania.

For comparison I have examined a series of 7 examples from the Philippines and 3 from Padang, Sumatra, 117 to 331 mm. These show:—

Depth $3\frac{1}{2}$ to $3\frac{2}{3}$; head 4 to $4\frac{1}{2}$, width $2\frac{1}{2}$ to $2\frac{2}{3}$. Snout $3\frac{2}{3}$ to 4 in head from snout tip; eye $4\frac{1}{10}$ to $4\frac{1}{2}$, 1 to $1\frac{1}{2}$ in snout, $1\frac{1}{8}$ to $1\frac{1}{4}$ in interorbital; maxillary reaches opposite hind eye edge, little beyond eye with age, expansion 2 to $3\frac{1}{2}$ in eye, length $1\frac{3}{8}$ to $1\frac{3}{4}$ in head; outer row of lower teeth curved upward and outward; interorbital $3\frac{1}{2}$ to $3\frac{3}{4}$, convex, elevated. Gill-rakers 3 + 13 lanceolate.

Scales close set, broadly lanceolate. Lateral line forms obtuse angle opposite front of spinous dorsal. Dorsal I, VII, 1, 20, 1, spines flattened, overlap, fifth $3\frac{1}{2}$ in total head length, second branched ray $1\frac{3}{8}$ to $1\frac{7}{8}$; anal II—1, 18, 1, first ray $1\frac{5}{8}$ to 2; least depth of caudal peduncle 4 to $4\frac{1}{2}$; pectoral $1\frac{3}{8}$ to $1\frac{1}{2}$; ventral $1\frac{1}{4}$ to $1\frac{1}{2}$; caudal $1\frac{1}{4}$, $4\frac{1}{5}$ in combined head and body to caudal base, forked. Uniform brownish.

Megalaspis cordyla (Linné).

Two 228 to 230 mm.

Caranx sexfasciatus, Quoy and Gaimard.

Two 127 to 132 mm.

Caranx kalla, Valenciennes.

Two 140 to 160 mm.

Carangoides malabaricus (Schneider).

Three 117 to 198 mm. In my account of South African fishes 2 specimens have the straight section of the lateral line $1\frac{1}{2}$ in the arch and not the reverse as printed.³ The Bombay examples show the straight section of the lateral line $1\frac{2}{3}$ to $1\frac{1}{2}$ in the arch.

Citula atropos (Schneider).

Depth $1\frac{1}{2}$; head $3\frac{1}{2}$, width 2. Snout $3\frac{1}{2}$ in head from snout tip; eye 4, equals snout or $1\frac{1}{3}$ in interorbital; maxillary reaches first third in eye, expansion $2\frac{1}{4}$, length $2\frac{1}{4}$ in head; narrow band of short conic teeth in each jaw and small patch of villiform teeth on vomer, none on palatines or tongue; interorbital $3\frac{2}{3}$ in head, elevated convexly with strong median keel to spinous dorsal. Gill-rakers 12 + 20, lanceolate, $1\frac{1}{8}$ in gill-filaments or $1\frac{2}{3}$ in eye.

Scales 34 + 36 in lateral line, 18 above arch to base of spinous dorsal, 33 below; predorsal with median naked strip its entire extent; breast and chest broadly naked to pectoral and ventral bases; scales with 45 to 48 + 50 to 63 vertical parallel striæ; arch of lateral line $1\frac{1}{2}$ in straight section. Dorsal I, VIII—1, 1, 21, 1, third erect spine $2\frac{1}{4}$ in total head, first branched ray $1\frac{3}{8}$; anal II—1, 1, 19, 1, first branched ray $1\frac{1}{2}$; least depth of caudal peduncle 5; caudal $3\frac{1}{2}$ in combined head and body to caudal base, forked; pectoral $2\frac{3}{8}$, falcate; ventral $3\frac{1}{2}$; vent midway in median abdominal groove in length of depressed ventral.

¹ *Hist. Nat. Poiss.*, vol. 8, 1831, p. 277.

² *Fishes of Coromandel*, vol. 2, 1803, p. 29 pl. 137, Vizagapatam.

³ *Proc. Acad. Nat. Sci. Phila.*, 1925, p. 216.

Back olivaceous brown, paler to whitish below. Iris gray. Dorsal and caudal pale brown, with spinous fin, soft dorsal edge above and stripe along each ray dotted with gray to dusky. Ventral neutral black. Anal and pectoral whitish.

One 217 mm. It agrees well with Russell's figure of *Maish parah*.¹ There are, however, no scales at the pectoral base in my example such as Russell shows. Also he does not indicate the small basal scales on the dorsal and anal or caudal, or on the lobes of these fins.

Apolectus niger (Bloch).

One 240 mm.

MENEIDÆ

Mene maculata (Schneider).

One 228 mm. Back drab brown with blue to neutral dusky spots. Sides and below silvery white.

RACHYCENTRIDÆ

Rachycentron canadum (Linné).

One 575 mm.

LACTARIIDÆ

Lactarius lactarius (Schneider).

Four 140 to 146 mm.

LEIOGNATHIDÆ

Leiognathus daura (Cuvier).

Depth $2\frac{1}{8}$; head $3\frac{1}{4}$, width 2. Snout $3\frac{1}{10}$ in head; eye $3\frac{1}{10}$, subequal with snout or interorbital; maxillary reaches opposite eye, expansion $3\frac{1}{2}$ in eye, length $2\frac{3}{8}$ in head; lower lip over twice width of upper; interorbital $2\frac{3}{8}$ in head, little elevated with depression medianly. Gill-rakers 6 + 14, lanceolate, $1\frac{1}{2}$ in gill-filaments which $\frac{1}{2}$ of eye.

Tubular scales about 60 + (pockets largely) in lateral line; scales very deciduous, most having fallen. Dorsal VIII, 16, 1, second spine $1\frac{3}{8}$ in head, second ray $3\frac{1}{2}$; anal III, 14, 1, second spine $1\frac{3}{10}$, second ray 4; caudal 1, well forked, lobes equal; least depth of caudal peduncle $4\frac{1}{3}$; pectoral $1\frac{1}{3}$; ventral 2.

Back drab gray, below paler to whitish. Traces of 10 pairs of darker vertical lines along edge of back. Snout end dark. Iris gray. Fins all pale, spinous dorsal terminally black. Pectoral base inside axil black.

One 94 mm. I also have a single example 80 mm. long from the Philippines for comparison. It shows:

Depth 2; head 3, width 2. Snout $2\frac{1}{3}$ in head; eye $3\frac{3}{8}$, $1\frac{1}{8}$ in snout, subequal with interorbital; maxillary reaches opposite front pupil edge, expansion 3 in eye, length $2\frac{1}{4}$ in head; teeth very minute, uniserial, obsolete in upper jaw; interorbital $3\frac{3}{8}$, convex, depressed medianly; supraorbital edge entire; lower preopercle edge denticulate, hind edge entire. Gill-rakers 7 + 21, lanceolate.

Scales very small, deciduous, absent from entire breast to pectoral and ventral bases. Lateral line little more arched than profile of back, extends midway along caudal peduncle side. Dorsal VIII, 16, 1, second spine $1\frac{3}{8}$ in head; anal III, 14, 1, second branched ray $1\frac{1}{4}$; caudal $1\frac{1}{10}$, forked, slender lobes pointed; caudal peduncle depth $4\frac{3}{8}$; pectoral $1\frac{2}{8}$; ventral $2\frac{1}{8}$.

Back drab gray, sides and below silvery white. Iris white. Snout sprinkled with dusky dots along front margin above lips. Fins pale brownish, spinous dorsal dusky marginally. Neutral dusky line along edge of back below dorsal base. Diffuse neutral dusky blotch about size of pupil at end of supraocular spine.

¹ *Fishes of Coromandel*, vol. 2, 1803, p. 38, pl. 152, Vizagapatam.

Leiognathus fasciatus (Lacépède).

Depth $1\frac{4}{5}$; head $3\frac{1}{5}$, width 2. Snout $2\frac{4}{5}$ in head; eye $3\frac{1}{10}$, $1\frac{1}{5}$ in snout, $1\frac{1}{5}$ in interorbital; maxillary reaches opposite eye, expansion $3\frac{1}{2}$ in eye, length $2\frac{3}{4}$ in head; lower lip scarcely wider than upper; interorbital 3, little elevated, with broad median depression. Gill-rakers $7 + 14$, lanceolate, $\frac{1}{2}$ of gill-filaments which $2\frac{1}{4}$ in eye.

Tubular scales $58 +$ (largely pockets) in lateral line; very deciduous, nearly all having fallen; breast naked to pectoral and ventral bases. Dorsal VIII, 16, 1, second spine filamentous, $2\frac{1}{8}$ in combined head and body to caudal base, first ray $4\frac{1}{4}$ in head; anal III, 14, 1, second spine 1, first ray $3\frac{2}{8}$; least depth of caudal peduncle 4; pectoral $1\frac{1}{2}$; ventral 2.

Back drab gray, paler to whitish below. Traces of a dozen or more obscure dark gray vertical lines. Iris deep gray. End of snout brown. Lips pale or whitish. Fins pale brown, inside pectoral axil blackish.

One 105 mm.

Gazza minuta (Bloch).

Five 64 to 137 mm. Three are much smaller than the others and with rather few obscure darker vermiculating lines.

ACROPOMATIDÆ

Acropoma japonicum, Günther

One 100 mm.

AMBASSIDÆ

Ambassis gymnocephalus (Lacépède).

Nine from pools in Back Bay, 43 to 62 mm.

SERRANIDÆ

Serranus lanceolatus (Bloch).

Three 51 to 150 mm. Larger two with mandibular teeth biserial or slightly triserial anteriorly. Dorsal XI, 14, 1, to XI, 16, 1; anal III, 8, 1. Dark line in maxillary groove.

PRIACANTHIDÆ

Priacanthus hamrur (Forskål).

One 208 mm. Gill-rakers $6 + 21$. Scales $65 + 4$. Dorsal X, 13, 1; anal III, 14, 1; ventral $1\frac{1}{8}$ in head. Generally bright red. Lower anal edge dark gray, Ventral neutral dusky.

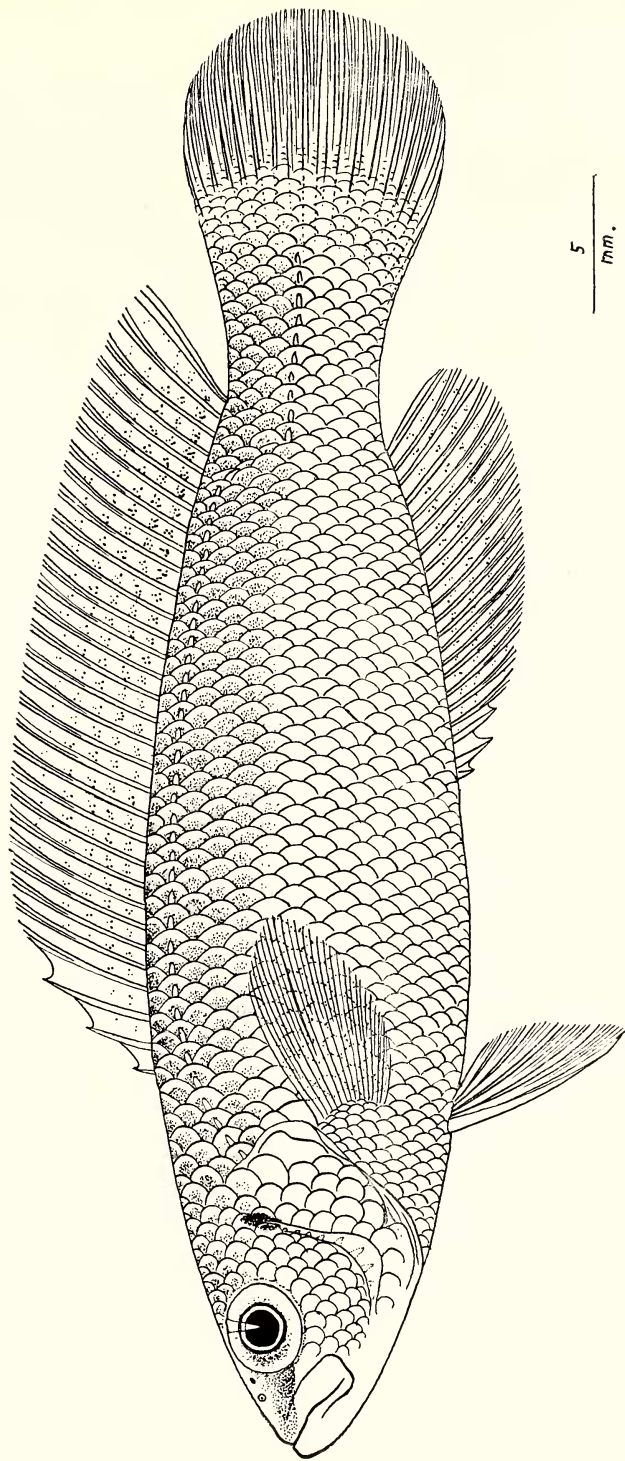
PSEUDOCROMIDÆ

Pseudochromis spencei, new species

Plate I

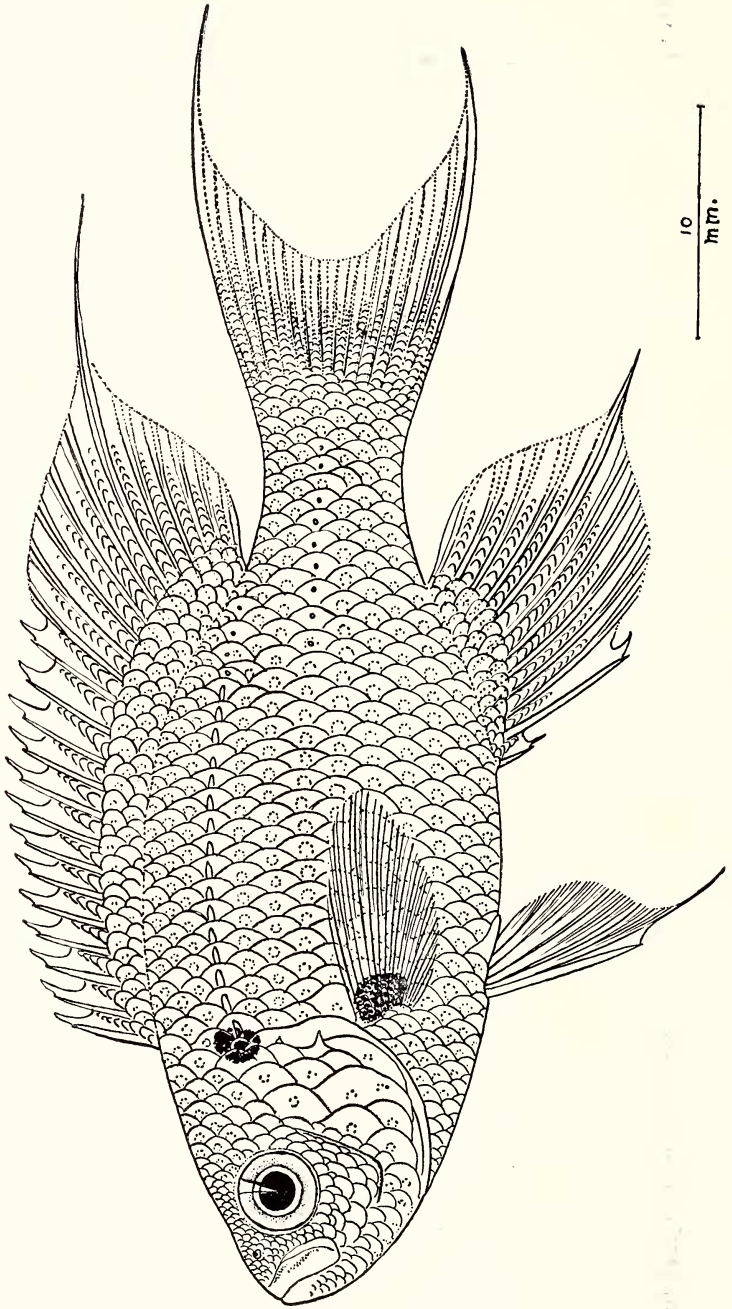
Depth $3\frac{4}{5}$; head $3\frac{1}{5}$, width $2\frac{1}{4}$. Snout $4\frac{2}{3}$ in head, from snout tip, little broader than long; eye $3\frac{2}{3}$ in head, greater than snout or interorbital; maxillary reaches slightly beyond front eye edge, expansion $2\frac{3}{4}$ in eye, length 3 in head; teeth conic, simple, uniserial in jaws, 4 canines in each anteriorly and small medio-lateral mandibular; no teeth on palate or tongue, latter pointed and free in front; interorbital $6\frac{1}{5}$ in head, slightly convex; preopercle edge entire; opercle ends in broad, short, free spine. Gill-rakers $5 + 10$, lanceolate, $\frac{1}{2}$ of gill-filaments which $1\frac{1}{3}$ in eye.

Scales $36 + 8 + 2$ in lateral line, 3 above, 14 below, 17 predorsal forward till midway in interorbital; 5 rows on cheek to preopercle ridge; muzzle naked; of fins only caudal scaled basally; scales with 11 basal radiating striæ, 57 apical denticles with 1 or 2 transverse series of basal elements, circuli fine. Dorsal III, 29, third spine $3\frac{3}{4}$ in total head length, third ray $2\frac{1}{2}$; anal III, 18,



Pseudochromis spencei, NEW SPECIES.

Henry W. Fowler, Del.



Pomacentrus prateri, NEW SPECIES.

Henry W. Fowler, Del.

second spine 6, eighth ray $2\frac{2}{3}$; caudal $1\frac{1}{2}$, convexly rounded behind; least depth of caudal peduncle $2\frac{1}{4}$; pectoral $1\frac{3}{8}$; ventral $1\frac{1}{4}$.

Back brownish, below paler. In postocular, at upper juncture of preopercle short dusky bar size of pupil. Iris gray. Under surface of head and body pale to whitish. Dorsals, caudal and anal pale gray. Dorsal and anal with numerous, obscure, dark longitudinal lines.

Type, an example from pools in Back Bay, 53 mm. long. This species differs from *Pseudochromis xanthochir* Bleeker, reported from the Andamans by Day, in its slightly different fin formula, its uniform coloration and above all in its dark postocular blotch.

Dedicated to Sir Reginald Spence, Honorary Secretary of the Bombay Natural History Society.

LUTJANIDÆ

Lutjanus johnii (Bloch).

Three 134 to 158 mm., also 2 from Back Bay 73 to 74 mm. All with dorsal rays 13, 1 or 14, 1. None show the usual dark blotch on the lateral line below the junction of the dorsal fins.

POMADASIDÆ

Pomadasis hasta (Bloch).

Three 125 to 310 mm.

THERAPONIDÆ

Therapon puta (Cuvier).

Young one from Back Bay pools 62 mm. long. For comparison I have 20 Philippine examples 80 to 112 mm. These show:—

Depth 3 to $3\frac{3}{8}$; head $2\frac{7}{8}$ to $3\frac{1}{4}$, width 2 to $2\frac{3}{8}$. Snout $3\frac{1}{4}$ to $3\frac{3}{8}$ in head; eye $3\frac{1}{8}$ to $3\frac{3}{8}$, 1 to $1\frac{1}{10}$ in snout, little greater than interorbital, more so in young; maxillary reaches opposite eye, length 3 to $3\frac{1}{2}$ in head; teeth simple, conic, villiform, in bands in jaws, outer row little enlarged, none on palate; interorbital 4 to $4\frac{1}{2}$, broadly convex; preopercle with lower edge finely denticulate, few denticles around angle at margin, of which at least 3 enlarged and median $\frac{1}{2}$ of eye; lower preorbital edge rough; opercular spine $\frac{1}{2}$ of eye. Gill-rakers 9 + 20, lanceolate, subequal with gill-filaments or $\frac{1}{2}$ of eye.

Scales 80 + 8, 12 above, 24 below, 19 or 20 predorsal to occiput, 6 rows on cheek to preopercle ridge; 8 or 9 basal radiating striæ, 10 to 12 apical denticles with 2 or 3 series of transverse basal elements and circuli fine. Dorsal XIII, 10, 1, fifth spine $1\frac{1}{2}$ to $1\frac{3}{8}$ in head, first ray $1\frac{3}{8}$ to $2\frac{1}{10}$; anal III, 8, 1, third spine $2\frac{3}{8}$ to $2\frac{1}{4}$, first ray $1\frac{3}{4}$ to $1\frac{9}{10}$; caudal $1\frac{1}{2}$ to $1\frac{3}{8}$, emarginate; least depth of caudal peduncle 3 to $3\frac{1}{10}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{8}$; ventral $1\frac{2}{5}$ to $1\frac{3}{8}$.

Back pale brown, below whitish. Iris whitish. Dark brown band begins over nostrils, runs over eye to bases of last dorsal rays; second band from snout tip to eye and then along median body axis to caudal medianly to its hind edge. Dark or blackish band horizontally across each caudal lobe medianly. Spinous dorsal pale or whitish, with large black area over highest portion. Soft dorsal pale, with dusky apical margin. Other fins pale, lower whitish, anal sometimes with dusky median area.

Therapon jarbua (Forskåll).

Three 128 to 245 mm.

LETHRINIDÆ

Lethrinus nebulosus (Forskåll).

Depth $2\frac{1}{2}$; head $2\frac{3}{8}$, width $1\frac{3}{8}$. Snout $2\frac{1}{10}$ in head; eye 4, $1\frac{9}{10}$ in snout, $1\frac{1}{2}$ in interorbital; maxillary exposed, reaches opposite front nostril, length $2\frac{3}{8}$ in head; teeth with outer enlarged row of which posterior 5 or 6 short, though broadly conic; 2 front canines in each jaw: inner narrow band of villiform teeth, at least anteriorly in jaws; interorbital $3\frac{1}{2}$, broadly convex. Gill-rakers 7 + 6, low broad tubercles, $2\frac{1}{2}$ in gill-filaments, which $1\frac{1}{4}$ in eye.

Scales 46 + 5, 7 above, 17 below, 8 predorsal; 17 to 19 basal radiating striæ, 82 to 89 apical denticles with 12 to 13 transverse series of basal elements and circuli fine. Dorsal X, 9, 1, fourth spine $2\frac{3}{4}$ in head, first ray 3; anal III, 8, 1, second spine $3\frac{1}{2}$, first ray $2\frac{3}{4}$; caudal $1\frac{1}{5}$, deeply forked: least depth of caudal peduncle 3; pectoral $1\frac{1}{8}$; ventral $1\frac{3}{8}$.

Drab brown, little paler on under surface of head and belly. Cheek with some small obscure dark spots. Traces of 3 or 4 nearly vertical dark bands which inclined little backward and apparently some intervening parallel narrower streaks. Iris slaty. Inside mouth orange red. Fins all dull brown, dorsal and anal with several obscure rows of dark spots longitudinally. Caudal also with traces of several dark cross bands. Pectoral pale brown. Ventral largely neutral dusky terminally, at least on membranes.

One 175 mm.

SPARIDÆ

Sparus datnia (Buchanan-Hamilton).

Depth $2\frac{1}{4}$; head $2\frac{3}{8}$, width 2. Snout $2\frac{1}{2}$ in head; eye $4\frac{1}{8}$, $1\frac{1}{8}$ in snout, $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{2}{3}$ in eye, expansion 2, length $2\frac{1}{2}$ in head; 6 conic canines in front of each jaw; 3 rows of molars each side below and 4 rows each side above, next to innermost posteriorly with broadest or largest teeth; interorbital $3\frac{3}{8}$, broadly convex; infraorbital depth to maxillary end $1\frac{1}{2}$ in eye; preopercle edge entire. Gill-rakers 5 + 11, short compressed points, $3\frac{1}{2}$ in gill-filaments which $1\frac{1}{8}$ in eye.

Scales 41 + 6, 6, above, 12 below, 18 predorsal to middle of interorbital; 6 rows on cheek; suprascapula entire; 11 basal radiating striæ, about 90 weak apical denticles with 6 distinct transverse series of basal elements and circuli very fine. Dorsal XII, 10, 1, spines strong, third 2 in head, first ray $2\frac{3}{8}$; anal III, 8, 1, second spine enlarged, $1\frac{3}{8}$, first ray $2\frac{3}{8}$; caudal $1\frac{1}{5}$, deeply forked; least depth of caudal peduncle $2\frac{1}{2}$; ventral $1\frac{1}{8}$; pectoral $2\frac{1}{2}$ in combined head and body to caudal base.

Brown over back and above, head, belly and under surface of tail whitish. Iris gray. Suprascapular region and upper hind part of opercle dusky brown. Dorsals, caudal and pectorals brownish, membranes of fins terminally neutral dusky, more broadly so on spinous dorsal. Anal and ventral whitish.

One 237 mm. Distinguished chiefly by its enlarged second anal spine, which long as combined eye and postocular part of head.

Pagrus major (Schlegel).

Depth $1\frac{9}{10}$; head $2\frac{3}{8}$, width 2. Snout 2 in head; eye $3\frac{7}{8}$, $1\frac{1}{8}$ in snout, $1\frac{1}{8}$ in interorbital; maxillary reaches first fourth in eye, expansion $2\frac{1}{4}$, length $2\frac{3}{8}$ in head; 4 conic upper canines, 6 lower, anteriorly in jaws; 3 rows of molars above and 2 below in each jaw each side; interorbital $3\frac{3}{8}$ in head, convexly elevated; eye $1\frac{1}{8}$ in preorbital width, which $2\frac{3}{8}$ in head; preopercle edge entire. Gill-rakers 6 + 11, low points, which $\frac{1}{4}$ of gill-filaments, last $1\frac{1}{8}$ in eye.

Tubular scales 53 in lateral line to caudal base, 7 above, 16 below, 13 predorsal to occiput though very small scales extend forward to front of interorbital; 6 rows on cheek to preopercle ridge. Dorsal XI, 10, 1, fourth spine 3 in head, first ray $3\frac{1}{2}$; anal III, 8, 1, third spine $3\frac{1}{8}$, first ray $3\frac{1}{8}$; caudal $1\frac{1}{5}$, deeply forked; least depth of caudal peduncle $2\frac{3}{8}$; ventral $1\frac{1}{2}$; pectoral $2\frac{3}{8}$ in combined head and body to caudal base.

Light brown generally, with mauve to gray tints on head and back. Some very small pale grayish spots or dots obscurely on snout. Iris gray white. Fins all pale brownish.

One 328 mm. I have followed Jordan and Thompson in accepting this as a distinct species¹ from the closely related *Pagrus auratus* (Schneider). It has apparently not been reported from India previously.

Dentex japonicus (Bloch).

Two 210 to 222 mm. to ends of caudal filaments.

¹ Proc. U. S. Nat. Mus., 47, 1912, p. 576.

GERRIDÆ

Gerres lucidus, Cuvier.

Four 83 to 88 mm.

Gerres filamentosus, Cuvier.

One 156 mm.

MULLIDÆ

Upeneoides sulphureus (Cuvier).

Depth 3 to $3\frac{1}{2}$; head 3 to $3\frac{1}{2}$, width $1\frac{7}{8}$ to 2. Snout $2\frac{1}{5}$ to $2\frac{1}{4}$ in head; eye $4\frac{1}{2}$ to $4\frac{1}{4}$, $1\frac{3}{4}$ to 2 in snout, $1\frac{1}{2}$ in interorbital; teeth small, short, in narrow bands in jaws in 4 or 5 irregular series, none on palate or tongue; maxillary reaches opposite eye, expansion $1\frac{1}{2}$ in eye, length $2\frac{3}{8}$ in head; interorbital $3\frac{1}{3}$ to $3\frac{2}{3}$, scarcely elevated, depressed medianly. Gill-rakers 10 + 20, lanceolate, $1\frac{1}{2}$ in gill filaments which $1\frac{1}{8}$ in eye.

Scales 33 + 4 or 5, 3 above, 7 below, 14 or 15 predorsal, 3 rows on cheek to preopercle ridge; 5 basal radiating striæ, 107 to 119 apical denticles with 9 to 15 transverse series of basal elements and circuli minute. Dorsal VIII-I, 8, I, second spine $1\frac{1}{2}$ to $1\frac{3}{8}$ in head, first branched ray 2 to $2\frac{1}{8}$; anal I, 6, I, first ray $2\frac{1}{10}$ to $2\frac{1}{8}$; caudal $1\frac{1}{2}$ to $1\frac{3}{4}$, well forked; least depth of caudal peduncle $2\frac{7}{8}$ to 3; pectoral $1\frac{7}{8}$ to $1\frac{1}{4}$; ventral $1\frac{3}{8}$ to $1\frac{1}{4}$.

Pale brown, little lighter below. Iris gray brown. Fins all pale. Spinous dorsal with black apex and median horizontal dusky band. Soft dorsal with dusky margin above and median longitudinal dark band.

Three 154 to 169 mm.

SCIÆNIDÆ

Otolithes ruber (Schneider).

Three 173 to 195 mm. All with maxillary reaching at least last fifth in eye.

Collichthys brunneus (Day).

Depth $4\frac{1}{2}$ to $5\frac{1}{2}$; head $3\frac{1}{8}$ to $3\frac{1}{2}$, width 2 to $2\frac{1}{8}$. Snout 4 to $4\frac{2}{5}$ in head from snout tip; eye $6\frac{2}{3}$ to $7\frac{3}{8}$, $1\frac{3}{4}$ to 2 in snout, $1\frac{7}{8}$ to $2\frac{1}{2}$ in interorbital; maxillary reaches well beyond eye or length $2\frac{1}{10}$ to $2\frac{1}{2}$ in head; teeth above in villiform band with outer row of enlarged teeth, of which most anterior appear as pair of slightly larger wide set canines; lower teeth as row of small inconspicuous outer row and an inner row of enlarged ones, with 2 anterior rather close set and slightly more canine like, though 3 or 4 median lower laterals largest in jaw; interorbital $3\frac{3}{8}$ to $4\frac{1}{8}$, broadly convex; preopercle edge membranous, with serrated points. Gill-rakers 7 + 11, lanceolate, $1\frac{1}{2}$ in gill-filaments which $1\frac{1}{4}$ in eye.

Scales 56 to 61 + 27, 14 above, 11 below, 50 predorsal; 11 on cheek to preopercle ridge; scales rather larger on head, fine on predorsal to occiput and along dorsal and ventral edges of body; 7 to 15 basal radiating striæ, 7 to 10 very small weak apical denticles in 3 to 5 transverse series and complete circuli fine. Dorsal X, 28, I or 29, I, fourth spine $2\frac{7}{8}$ to $3\frac{1}{2}$ in head, first ray 3 to $3\frac{1}{8}$; anal II, 6, I, second spine $5\frac{1}{4}$ to $5\frac{3}{8}$, second ray $2\frac{1}{2}$ to $2\frac{3}{4}$; caudal I to $1\frac{3}{8}$, ends in median point behind; least depth of caudal peduncle $4\frac{1}{2}$ to $5\frac{1}{2}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{8}$; ventral $1\frac{9}{10}$ to $2\frac{1}{10}$.

Drab brown with dusky tint, but little paler below or on under surfaces, even these smutty. Iris dark gray. Dorsals, caudal and anal largely dark gray, neutral dusky or blackish terminally.

Two 175 to 275 mm.

Johnius diacanthus (Lacépède).

One 308 mm. Five broad dark transverse bands on back and sides. Whole body with more or less soiled or smutty shade. Soft dorsal and caudal spotted with darker. Anal and paired fins dark gray.

Johnius sina (Cuvier).

Five 122 to 208 mm. Although Day gives 8 scales above the lateral line his figure of *Sciæna sina* shows but four.

This species is noticed by me, but made to read wrongly under *Johnius diacanthus* (Lacépède).¹ The heading '*Johnius sina* (Cuvier)' should have been placed at line 48 as was indicated in the corrected proof. The earlier *Argyrosomus* De la Pylae will replace the subgeneric name *Pseudosciæna* Bleeker. In the same paper at the beginning of line 10, under *Johnius æneus* Bloch, add 'eye $4\frac{1}{2}$ to 5, $1\frac{1}{2}$ to $1\frac{1}{4}$ in snout.'

SILLAGINIDÆ

Sillago ihama (Forskål).

Three 98 to 165 mm.

EPHIPPIDÆ

Drepane punctata (Linné).

Two 148 to 177 mm.

SIGANIDÆ

Siganus rivulatus (Forskål).

One 150 mm.

PLATYCEPHALIDÆ

Thysanophrys crocodilus (Tilesius).

Depth 6; head $2\frac{1}{2}$, width $1\frac{3}{8}$. Snout $3\frac{1}{2}$ in head from snout tip; eye $7\frac{1}{2}$, $2\frac{1}{2}$ in snout, little greater than bony interorbital; maxillary reaches slightly beyond front of eye, expansion 2 in eye, length $2\frac{3}{8}$ in head; teeth villiform, in broad bands in jaws, small patch each side of vomer and narrow band along each palatine; bony interorbital $1\frac{1}{2}$ in eye, flat, eyes protruding little above each side; 2 preopercle spines, upper little larger or about half of eye. Gill-rakers 2 + 4, lanceolate, slightly less than gill-filaments or $1\frac{1}{2}$ in eye.

Scales 100 + 7 in lateral line, 8 above to spinous dorsal origin, 18 below, 17 predorsal to occiput. Dorsal I, VIII-r, 10, 1, third spine $2\frac{1}{2}$ in total head length, first branched ray $3\frac{1}{2}$; anal 1, 10, 1, first branched ray $4\frac{3}{8}$; caudal $1\frac{9}{10}$, rounded behind, though uppermost rays end in protruded point above; least depth of caudal peduncle $7\frac{1}{2}$; pectoral $2\frac{1}{2}$; ventral $1\frac{3}{8}$.

Brown above, lighter or soiled brown below and under surface of head whitish. At last dorsal spines and front of soft dorsal large deeper brown saddle like blotch and another below posterior dorsal rays. Back and upper surface of head with small scattered dusky brown spots. Dark blotch below eye. Iris slaty. Dorsal greenish olive basally, neutral dusky terminally. Anal whitish. Caudal brown, clouded darker. Pectoral neutral dusky, with small scattered obscure dark spots. Ventral dusky, olivaceous basally, spine paler.

One 417 mm. Also one from the Philippines, 208 mm. It shows:—

Depth $8\frac{3}{4}$; head $2\frac{7}{8}$, width 2. Snout $3\frac{1}{2}$ in head from snout tip; eye $5\frac{1}{2}$, $1\frac{3}{4}$ in snout, over twice interorbital; maxillary reaches front pupil edge, length $1\frac{3}{8}$ in head; broad bands of granular teeth in jaws and small narrow bands on vomer and palatines, interorbital 11, deeply concave; antero-supraorbital spine, 4 above posterior half of eye with last longest; single occipital spine each side; small postocular spine little elevated, followed by 3 above opercle and long spine at suprascapula; 2 small infraorbitals on suborbital stay, also another spine at angle which $\frac{1}{2}$ of eye, besides much shorter one close below; opercle with 2 moderate spines. Gill-rakers 1 + 5, lanceolate.

Scales 110 + 8, tubes 56 + 3, 8 above to soft dorsal origin, 18 below and 14 predorsal; 8 rows on cheek to preopercle ridge at angle; 7 or 8 basal radiating striæ, 23 to 31 apical denticles with 5 to 7 transverse series of basal elements and circuli fine. Dorsal I, VIII, 1, 10, 1, third spine $2\frac{1}{2}$ in total head length, first branched ray $2\frac{1}{2}$; anal 1, 10, 1, first ray $4\frac{3}{8}$; caudal 2, slightly convex behind; least depth of caudal peduncle 7; pectoral $2\frac{1}{2}$; ventral $1\frac{1}{2}$.

¹ Journ. Bom. Nat. Hist. Soc., November 1926, p. 9.

Brown above, whitish below. Iris gray. Spinous dorsal light brown, with several dark brown spots on each ray. Caudal brown, with several of outer membranes very dark brownish or blackish. Anal pale. Paired fins light brown, darker terminally.

Thysanophrys scaber (Linné).

Depth 8; head $2\frac{2}{10}$, width 2. Snout $3\frac{1}{2}$ in head from snout tip; eye 7, 2 in snout, little greater than bony interorbital; maxillary reaches slightly beyond front of eye, expansion $2\frac{1}{3}$ in eye, length $2\frac{2}{3}$ in head; teeth villiform, in broad bands in jaws, small patch each side of vomer and narrow band along each palatine; bony interorbital $1\frac{1}{3}$ in eye, little concave; preopercle spine 4 in head, very short one below. Gill-rakers $1 + 7$, lanceolate, equal gill-filaments or $1\frac{1}{3}$ in eye, also 4 rudimentary tubercles above and 9 below.

Spinous scales 53 in lateral line to caudal base, scales along lateral line $88 + 6$, 5 above to spinous dorsal origin, 16 below, 10 predorsal to occiput. Bones on top of head more or less rugosely striate. Dorsal I, VIII, 1, 11, 1, third spine $2\frac{2}{3}$ in total head length, first branched ray $2\frac{2}{3}$; anal I, 12, 1, first branched ray $4\frac{2}{3}$; caudal $1\frac{9}{10}$, forming median obtuse angle behind; least depth of caudal peduncle 7; pectoral $2\frac{2}{3}$; ventral $1\frac{1}{3}$.

Brown above, obscurely mottled darker. Under surface of body whitish. Irish slaty. Spinous dorsal neutral dusky, large black blotch on last 2 membranes terminally. Soft dorsal dull gray with darker blotches or spots. Caudal with upper and lower edges narrowly pale, fin otherwise dark gray, more or less dusky terminally. Pectoral brownish, finely spotted with dusky gray. Ventral neutral blackish, front and hind edge narrowly whitish.

One 217 mm.

Thysanophrys macracanthus (Bleeker).

Depth $7\frac{1}{2}$; head $2\frac{1}{2}$, width $2\frac{1}{3}$. Snout $3\frac{1}{3}$ in head from snout tip; eye 4, $1\frac{1}{4}$ in snout, nearly 3 times interorbital; maxillary reaches opposite first third in eye, expansion $2\frac{1}{2}$ in eye, length $2\frac{1}{4}$ in head; teeth villiform, in bands in jaws, small patch on vomer and narrow band on each palatine; interorbital $2\frac{1}{2}$ in eye, concave; preopercle spine $1\frac{1}{3}$ in eye, nearly long as its distance from eye. Gill-rakers $2 + 5$, lanceolate, upper inner edge spinescent, long as gill-filaments which $2\frac{1}{4}$ in eye.

Tubular scales $44 + 3$ in lateral line, large, simple, though not armed with scutes, likely a condition of youth? Scales very fine, 10 above lateral line, 15 below, 16? predorsal to occiput; cranium largely scaly, head otherwise naked. Dorsal I, VIII, I, 10, 1, fourth spine 3 in total head length, second branched ray $2\frac{2}{3}$; anal 11, third ray $4\frac{1}{3}$; caudal $1\frac{9}{10}$, obtuse or truncate; least depth of caudal peduncle $8\frac{1}{4}$; pectoral $2\frac{1}{4}$; ventral $2\frac{1}{8}$.

Back brown, sides with gray and lower surface whitish. Obscure transverse brownish band across middle of occiput. Dark brown transverse band or saddle like blotch from last half of spinous dorsal. Another at last half of soft dorsal. Iris slate gray. Spinous dorsal neutral blackish on each membrane medially. Soft dorsal and caudal grayish, with terminal dusky band and large transverse basal dusky blotch on caudal. Anal whitish. Paired fins blackish.

One 40 mm.

Pomacentrus prateri, new species.

Plate II

Depth $2\frac{1}{2}$; head 3, width $1\frac{1}{3}$. Snout $3\frac{1}{2}$ in head from snout tip; eye $3\frac{1}{2}$, subequal with snout or interorbital; maxillary extends but very slightly beyond front of eye, expansion $2\frac{2}{3}$ in eye, length $3\frac{1}{4}$ in head; teeth small, compressed, anterior in each jaw at least uniserial incisors, laterals more pointed; interorbital $3\frac{1}{2}$ in head, convex; preopercle edge minutely serrated. Gill-rakers $.7 + 13$, lanceolate.

Tubes 16 in upper section of lateral line followed by 4 pores and 9 pores in horizontal section to caudal base; 3 scales above lateral line, 9 below, 18 predorsal forward opposite nostril; 4 rows on cheek, of which uppermost on preorbitals and suborbitals, which without lower edges free, also lowest row on